

REMARKS

The final Office Action of June 1, 2006, has been received and reviewed.

Claims 21-45, 69-82, and 92-111 are currently pending in the above-referenced application. Of these, claims 21-27, 29-37, 40-45, 69-74, 76-80, and 92-111 have been considered and stand rejected. Claims 28, 38, 39, 75, 81, and 82 have been withdrawn from consideration pursuant to the election dated September 15, 2005, in response to a species election requirement in the above-referenced application.

Reconsideration of the above-referenced application is respectfully requested.

Objection under 35 U.S.C. § 132(a)

The amendments filed on September 15, 2005, and March 15, 2006, have been objected to under 35 U.S.C. § 132(a) for purportedly introducing new matter into the specification of the above-referenced application. Specifically, it has been alleged that the phrase “programmed material consolidation” is new matter.

It is respectfully submitted that introduction of the phrase “programmed material consolidation” into several claims of the above-referenced application does not amount to the introduction of new matter into the above-referenced application. This is because the above-referenced application discloses use of stereolithography, which is known to those of ordinary skill in the pertinent art to be an example of a process in which unconsolidated material is consolidated under control of a program; *i.e.*, by a programmed material consolidation process. *See, e.g.*, paragraph [0050] of the as-filed specification.

The as-filed specification of the above-referenced application provides clear support for the recitation of “programmed material consolidation” in several as-filed claims of the above-referenced application. *See, e.g.*, claims 21, 35, 69, and 76. *See M.P.E.P. § 608.04.* Therefore, the additional inclusion of “programmed material consolidation” in the claims does not amount to the introduction of new matter into the above-referenced application. Accordingly, it is respectfully requested that the new matter objection under 35 U.S.C. § 132(a) be withdrawn.

Rejections under 35 U.S.C. § 112, First Paragraph

Claims 21-27, 29-37, 40-45, 69-74, 76-80, and 92-111 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

The phrase “programmed material consolidation” refers to a process in which an unconsolidated material may be selectively consolidated by use of equipment under control of at least one computer program to fabricate a two or three-dimensional structure. Paragraph [0050] of the as-filed specification clearly describes a “programmed material consolidation” process. Stereolithography is given merely as an example of a process that may be employed, and should not be considered to limit the scope of any claim of the above-referenced application. One of ordinary skill in the art would recognize that other methods of programmed material consolidation would fall within the scopes of the claims.

Additionally, under M.P.E.P. § 2173.05(e), “there is no requirement that the words in the claims must match those used in the specification disclosure.” While the phrase “programmed material consolidation” is not used in paragraph [0050], it is clear from the as-filed specification that an unconsolidated material may be selectively consolidated by use of equipment under control of at least one computer program to fabricate a two or three-dimensional structure. Therefore, the as-filed specification of the above-referenced application provides an adequate written description for inclusion of the phrase “programmed material consolidation” in independent claims 21, 35, and 69. As such, each of these claims, as well as each of claims 22-27, 29-34, 36, 37, 40-45, 70-74, 76-80, and 92-111 depending therefrom, complies with the written description requirement of the first paragraph of 35 U.S.C. § 112.

It is respectfully requested that the 35 U.S.C. § 112, first paragraph, rejections of claims 21-27, 29-37, 40-45, 69-74, 76-80, and 92-111 be withdrawn.

Rejections under 35 U.S.C. § 112, Second Paragraph

Claims 26, 27, 37, 43, 45, 73, and 74 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, it has been asserted that one of ordinary skill in the art would not understand what is meant by the term “substantially,” as used to modify the terms “planar” (claims 26-27, 37, 73, and 74), “cured” (claim 43), and the phrase “the same degree of finishing” (claim 45).

It is respectfully submitted that one of ordinary skill in the art would readily understand, in view of the guidelines provided in the specification of the above-referenced application, the meaning and scope of the term “substantially,” as used in each of these contexts. *See, e.g.*, M.P.E.P. § 2173.05(b)(D). For example, referring to claims 26-27, 37, 73, and 74, and the term “substantially planar,” one of ordinary skill in the art would recognize that a substrate could include non-planarities for a variety of reasons (*e.g.*, from the process of slicing wafers from an ingot, due to stresses incurred over the surface of the substrate as features are fabricated thereon, etc.). Therefore, while a substrate may not be entirely planar, it may still be substantially planar.

Referring to claim 43 and the phrase “substantially cured,” paragraphs [0053] and [0055] provide guidance as to the meaning and scope of the phrase. In particular, paragraph [0055] provides that after the material of adhesive coating 18 has been substantially cured, it will no longer adhere to the nonstick material of upper surface 114 or nonstick layer 116. It is further explained that by substantially curing the material of adhesive coating 18, no residual adhesive material will remain on upper surface 114 and the need to clean the same will be eliminated. One of ordinary skill in the art would recognize that a material of an adhesive coating may be substantially cured without being fully cured and still achieve a desired function.

With regard to claim 45 and the phrase “substantially the same degree of finishing,” one of ordinary skill in the art would recognize that the degree of finishing required of surfaces of a stereolithographically fabricated object may not be exact for all sides. Therefore, it would be understood by one of ordinary skill that a particular surface may require substantially the same degree of finishing as other surfaces of the fabricated object.

As one of ordinary skill in the art would readily understand the scopes of the objected-to phrases, it is respectfully submitted that each of claims 26-27, 37, 43, 45, 73, and 74 complies with the definiteness requirement of the second paragraph of 35 U.S.C. § 112.

Withdrawal of the 35 U.S.C. § 112, second paragraph, rejections of claims 26-27, 37, 43, 45, 73, and 74 is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 69, 71, and 76 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over that taught in U.S. Patent 5,121,329 to Crump (hereinafter “Crump”).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.
In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It has been asserted that col. 9, lines 1-26, of Crump teaches a release article for stereolithographically fabricated objects. At col. 9, lines 1-26, Crump teaches that a wire mesh substrate 108, upon which an article is fabricated, may be secured to base plate 110 with double-faced adhesive tape. Col. 9, lines 4-6. Sand particles on the substrate 108 and the open cells of the wire mesh facilitate adhesion of the substrate 108 to a fabricated article. Col. 9, lines 9-13. Once the article is fabricated, the wire mesh of the substrate 108 is heated to facilitate its removal from the article. Col. 9, lines 13-23. Crump also teaches that an article may be fabricated upon a substrate 108 that comprises water soluble wax. Col. 9, lines 24-26.

With respect to independent claim 69, as proposed to be amended herein, Crump lacks any teaching or suggestion of a substrate that comprises a material that will adhere to an object during fabrication thereof and which may be pulled from the object once the object has been fabricated without requiring further processing of a surface from which the substrate is removed. Notably, one of ordinary skill in the art would expect the wire mesh and sand of the substrate 108 of Crump to leave a rough surface on the fabricated object that would require further processing. A water soluble wax substrate would facilitate removal of an article from a support, but one of ordinary skill in the art couldn't reasonably expect that such a substrate could be pulled from the fabricated object.

Therefore, it is respectfully submitted that Crump does not teach or suggest each and every element of independent claim 69, that one of ordinary skill in the art would have no reason to expect that the substrate 108 of Crump could be modified in such a way as to result in the apparatus of amended independent claim 69, or that one of ordinary skill in the art would have been motivated to modify the apparatus of Crump in such a way as to result in the apparatus of amended independent claim 69. Thus, the teachings of Crump do not support a *prima facie* case of obviousness against amended independent claim 69. It is, therefore, respectfully submitted that the subject matter recited in amended independent claim 69 is, under 35 U.S.C. § 103(a), allowable over the subject matter taught in or suggested by Crump.

Claims 71 and 76 are each allowable, among other reasons, for depending directly from amended independent claim 69, which is allowable.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 69, 71, and 76 is respectfully requested, as is the allowance of these claims.

CONCLUSION

It is respectfully submitted that each of claims 21-45, 69-82, and 92-111 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing

allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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